tion of the station has been carefully chosen; it is situated upon an extensive and desert plateau, near Hald, 11 kilometers south-southwest from Viborg, sufficiently distant from the sea and on one of the three routes ordinarily followed by the barometric depressions in this part of Europe. An extensive Danish landed proprietor, Jagdmeister Krabbe, has kindly cooperated with this scientific undertaking by placing the ground at the disposal of the committee and by directing the construction of the wooden buildings.

The regular observations began at the beginning of August, 1902; they will probably terminate during the month of April, 1903. During the fine season, strong winds below and relatively feeble winds above were frequently observed, a condition not very favorable to the sending up of kites. This regimen which is a characteristic of high pressures prevails for all directions of wind. From observations made in Berlin Berson had believed that this is a characteristic peculiar to east winds, and that west winds on the contrary show a rapid increase in velocity with altitude, but, as he himself recognized later, this is only because the east winds in Germany generally coincide with high pressures and the west winds with low pressures.

At the end of September and during October there was observed at Viborg the passage of several depressions of small diameter and rapid movement, which did not probably reach to any very considerable height, but showed all the characteristics of the cyclone, properly so-called, such as the reversal of the wind from the front to the rear, the central calm and even the momentary clearing of the sky, known as the "eye of the storm."

Later on came the great winter depressions accompanied with extremely strong winds. On Christmas day there even occurred a violent tempest which came near destroying the revolving shelter used for sending up the balloons and kites. The anemometer became useless after having registered a velocity of 35 meters, which velocity was certainly exceeded afterwards. According to the inhabitants this tempest was the most violent that has occurred in Denmark, except that of 1872 which inundated several islands.

Certain kite ascensions were distinguished by interesting occurrences; the 15th of August, after a breakage in the line, the string of kites dragged for about 120 kilometers, 80 of which were at sea. Another time, November 11, the kites escaped in a northwesterly direction and were found in Norway.

In regard to the sounding balloons, the proximity of the sea renders special precautions necessary; they are regulated so that the ascension shall not last more than, at most, 15 or 20 minutes, and the altitude attained under these conditions is only from 5000 to 6000 meters.

The meteorographic tracings are made by engraving on copper, by a process that has been made practicable by a new system of metallic pen due to M. Raymond. It suffices to fill the pens with sulphuric acid and to use sheets of copper which are covered with lamp black, in order, as much as possible, to avoid seams. The curves thus obtained are much less delicate than by the ordinary lamp black process, but they have the advantage of being ineffaceable. All reductions and computations are made promptly, and the publication of the results can therefore follow very closely on the termination of the work.—*Annuaire de la Société Météorologique de France, Février, 1903. Pp. 32–34.*

COURSES OF INSTRUCTION.

Among the recent courses of instruction in meteorology and climatology we notice those offered by Dr. J. Paul Goode, Ph.D., instructor in geography in the Wharton School of Economics in the University of Pennsylvania. There is a short course of four hours a week during the first term of the year entitled "Climatology and applications in economic geography." It covers the following subjects:

Principles of meteorology; general atmospheric circulation; laws of storms with special attention to the cyclonic storm; charting of weather elements. Application of principles of meteorology to the interpretation of regional climates. Climate as a factor in economic and social development.

There is also in the course for teachers a series of lectures, occupying one hour, given each Saturday throughout the college year, about forty in all, entitled "The atmosphere and the ocean."

Part 1. Meteorology; the general atmospheric circulation, the laws of storms, the charting of weather elements, and the interpretation of weather maps. Scientific weather forecasting.

Part 2. Oceanography; the principles of oceanic circulation, action of waves and tides, harbors, sailing routes.

Part 3. Climatology; the regional application of the principles of climate to the world at large.

Doctor Goode has recently accepted a position in the department of geology of the University of Chicago, and will probably give these same courses at that place next year. It is most important that all teachers should profit by such lectures so that the general public may be educated up to a better appreciation of the difference between the daily weather map with the forecasts of the Weather Bureau and the farmers' almanacs with the forecasts of these astrological editors.

HANN'S CLIMATOLOGY IN ENGLISH.

As we go to press we have the pleasure of being able to announce that the famous Handbuch der Klimatologie of Prof. Julius Hann is now accessible to the English-speaking world, in a beautiful edition published by the Macmillan Company of New York and London at the very reasonable price of $3.

American meteorologists will be proud to accept this epoch-making treatise from the hands of their colleague, Prof. R. DeC. Ward, of Harvard University. He gives us not merely a translation of this admirable work, but a volume that contains so many additions and improvements that, with the consent of the author, it may well be known as a joint work by Ward and Hann. Professor Ward has long been known as the successor of Prof. Wm. M. Davis in building up a most influential school of meteorology at Harvard. From this school many teachers have gone forth to battle for the cause of higher education in this science. A number of these have even published elementary text-books on physical geography, including climatology, and these subjects are now studied in thousands of schools throughout the United States, instead of being totally neglected as was the case when the Weather Bureau began its work over thirty years ago.

By teaching the elements of climatology to the youth of our land, these schools and enthusiastic teachers are laying the sure foundation for the development, here and there, of an interest in the fundamental problems of meteorology which is sure to culminate in the education of many future American investigators and promotors of this science. As the efficiency of the British Navy is said to lie in the fact that the British marine can always furnish trained sailors, so the strength of American science will depend upon the proportion in which all American youths are taught the elementary truths of science. Not every student of physical geography will become a meteorologist, but the probability that many may do so is increased by the diffusion of just such books as this admirable treatise and translation.

It is certainly not too much to say that there is no work on this subject in the English language to be compared with the present volume. Not only are the older treatises by Buchan in England and Loomis in America already quite out of date, but the more recent treatises, about twenty of which are mentioned in the MONTHLY WEATHER REVIEW for August, 1902, entirely fail to take the comprehensive view of the subject presented to us in this treatise by Hann. Nearly all of these treatises have a didactic style, oftentimes interesting, but leading the reader to the conclusion that the author's statement must embrace pretty much all that is known on the subject, whereas the present work stimulates the student to further inquiry, and, in fact, by means of numerous references on nearly every page tells him just where he may go for further information. A brief review of these references must impress one with the fact that the great mass of important material in meteorology has been published in French and German, while those who use the English language, although they are indefatigable in observing and publishing, yet fail to apply to nature those methods of study that are necessary in order to secure real advance in knowledge. It must be considered as a very important characteristic of the present work that it brings home to the English reader the results of so much that is published in foreign languages.